

Claims

- [c1] 1. A bicycle disk brake rotor apparatus comprising:
a generally circular first rotor member with a first fixing component structured to mount the first rotor member to a hub mounting member;
a generally circular first second rotor member with a first second fixing component structured to mount the first second rotor member to the hub mounting member;
wherein the first rotor member is attached to a side of the first second rotor member; and
wherein the first second rotor member is formed of a material having greater braking wear resistance than the first rotor member.
- [c2] 2. The apparatus according to claim 1 further comprising:
a generally circular second second rotor member with a second second fixing component structured to mount the second second rotor member to the hub mounting member;
wherein the second second rotor member is formed of a material having greater braking wear resistance than the first rotor member; and
wherein the first rotor member is attached to and is disposed between the first second rotor member and the second second rotor member.

- [c3] 3. The apparatus according to claim 2 wherein the first rotor member has greater thermal conductivity than the first second rotor member and the second second rotor member.
- [c4] 4. The apparatus according to claim 2 wherein the first rotor member comprises aluminum, and wherein the first second rotor member and the second second rotor member each comprises stainless steel.
- [c5] 5. The apparatus according to claim 4 wherein each of the first second rotor member and the second second rotor member is formed with a hardening process.
- [c6] 6. The apparatus according to claim 5 wherein the first second rotor member and the second second rotor member are pressure welded to the first rotor member.
- [c7] 7. The apparatus according to claim 6 wherein the first second rotor member and the second second rotor member are hot rolled to the first rotor member.
- [c8] 8. The apparatus according to claim 6 wherein the first second rotor member and the second second rotor member are forge welded to the first rotor member.
- [c9] 9. The apparatus according to claim 2 wherein the first rotor member has a thickness of from approximately 0.5 millimeters to approximately 1.5 millimeters, and wherein the first second rotor

member and the second second rotor member each has a thickness of from approximately 0.2 millimeters to approximately 0.8 millimeters.

[c10] 10. The apparatus according to claim 2 further comprising:
a plurality of the first fixing components;
a plurality of the first second fixing components;
a plurality of the second second fixing components;
wherein each of the plurality of first fixing components aligns with a corresponding one of the plurality of first second fixing components; and
wherein each of the plurality of first fixing components aligns with a corresponding one of the plurality of second fixing components.

[c11] 11. The apparatus according to claim 10 wherein the plurality of first fixing components, the plurality of first second fixing components, and the plurality of second second fixing components are circumferentially disposed along their respective first rotor member, first second rotor member and second second rotor member.

[c12] 12. The apparatus according to claim 11 wherein the first rotor member, the first second rotor member and the second second rotor member each comprises a ring-shaped member, and
wherein the plurality of first fixing components, the plurality of first second fixing components, and the plurality of second second fixing components extend radially inwardly from an inner

peripheral surface of their respective first rotor member, first second rotor member and second second rotor member.

- [c13] 13. The apparatus according to claim 12 wherein each of the plurality of first fixing components, each of the plurality of first second fixing components, and each of the plurality of second second fixing components is structured to receive a fastener therethrough.
- [c14] 14. The apparatus according to claim 13 further comprising the fastener for each of the plurality of first fixing components, the plurality of first second fixing components, and the plurality of second second fixing components, wherein at least one fastener comprises aluminum.
- [c15] 15. The apparatus according to claim 2 further comprising the hub mounting member structured to mount to the first fixing component, to the first second fixing component and to the second second fixing component.
- [c16] 16. The apparatus according to claim 15 wherein the hub mounting member comprises:
a centrally disposed hub attachment component structured to be mounted to the hub; and
a rotor attachment component extending radially outwardly from the hub attachment component and structured to mount to the first fixing component, to the first second fixing component and to

the second second fixing component.

[c17] 17. The apparatus according to claim 16 wherein the hub mounting member has greater thermal conductivity than the first second rotor member and the second second rotor member.

[c18] 18. The apparatus according to claim 17 further comprising:
a plurality of the first fixing components extending circumferentially around the first rotor member;
a plurality of the first second fixing components extending circumferentially around the first second rotor member; and
a plurality of the second second fixing components extending circumferentially around the second second rotor member;
wherein each of the plurality of first fixing components aligns with corresponding ones of the plurality of first second fixing components and the plurality of second fixing components.

[c19] 19. The apparatus according to claim 18 wherein the first rotor member, the first second rotor member and the second second rotor member each comprises a ring-shaped member, and
wherein the plurality of first fixing components, the plurality of first second fixing components, and the plurality of second second fixing components extend radially inwardly from an inner peripheral surface of their respective first rotor member, first second rotor member and second second rotor member.

[c20] 20. The apparatus according to claim 19 wherein the rotor

attachment component comprises a plurality of arm components extending radially outwardly from the hub attachment component, wherein each arm component is fixed to a corresponding first fixing component, first second fixing component and second second fixing component.

- [c21] 21. The apparatus according to claim 20 further comprising a fastener extending through each associated arm component, first fixing component, first second fixing component and second second fixing component.